

Inns of Court, and the Royal Colleges of Physicians and of Surgeons of London.

The Chairman said since they last met several things had happened, the most important of which was the appointment by the University of London of a Committee to inquire into the possibility of adopting the scheme, or something like the scheme, which was in the hands of members of that association when they formerly assembled together. The sub-committee of the association had carefully considered since how this move in the Convocation of the University of London affected their prospects and actions, and they had arrived at the conclusion that the best course for them to pursue was to ask the association to allow their scheme to be referred to a committee appointed at that meeting, in which committee all the various bodies who had hitherto shown their sympathy for the sub-committee's scheme should be represented, and to which committee any other proposals could be made by members of the association who in any way disagreed with any of the details of the scheme that had been laid before them. The committee to be appointed would no doubt undertake, as soon as they had finally determined upon a scheme—after negotiation and as a result of negotiation—to present it to the general body of members of the association for their consideration. He thought this was a practical way of dealing with a very intricate and complicated problem. That problem since they last met certainly looked much more hopeful, and it had met with much more rapid support in various quarters than the promoters of the movement originally anticipated.

Prof. Williamson said the work before them was one of exceeding difficulty, involving as it did a change in many respects in the conduct of the London University and the placing it upon the footing of other Universities; and this, again, involved a great number of details. The elements of the University of London were so numerous, and many of them were so independently developed in a great degree, that if those various constituent parts—the natural limbs of the University—were to work together it was essential that all should understand what relations they were to hold to each other. The maturing of schemes determining the particular relations of the general University to those various bodies it was sought to connect with it must of necessity require careful, calm, and friendly consideration on the part of representative members, and the committee to be appointed would probably form several sub-committees representing different branches of learning, who might be able to agree upon a general outline of a plan which they would conceive to be most mutually desirable and advantageous. Thus the incorporation of the various limbs of the University, so to speak, might be based upon a distinct understanding of what was contemplated, and they might be induced—as he had no doubt they would be—to vigorously support a scheme which would tend to their mutual benefit and the raising of the standard of education in London.

The resolution was then unanimously adopted.

Lord Justice Bowen moved, and Mr. Erichsen seconded, that the committee consist of the following thirteen gentlemen:—The president of the Association, Mr. J. W. Cunningham (King's College), Prof. Carey Foster (University College), Mr. John Marshall (College of Surgeons), Dr. Norman Moore (St. Bartholomew's Hospital), Dr. W. M. Ord (St. Thomas's Hospital), Mr. F. Pollock (Lincoln's-inn), Mr. R. Stuart Poole (British Museum), Dr. P. W. Pye-Smith (Guy's Hospital), the Rev. Principal Wace (King's College), Prof. Warr (King's College), Prof. Williamson (University College), and Sir George Young, with power to add to their number.

Prof. Bentley expressed a hope that the claims of science to be represented on the committee would not be ignored. Further, he trusted that every effort would be made to ascertain all the information which could possibly be derived with regard to the working of medical degrees and the teaching connected with them.

Sir George Young pointed out that the scheme which the committee would prepare was not intended to be binding upon the members; but it was hoped in the end that a plan might be devised which would not only be acceptable to King's College, but other institutions of inferior rank.

Mr. F. Pollock thought the plan of having two Universities, one of which would be an examining and the other a teaching University, would be very difficult to work, and it was not a scheme which he should contemplate as desirable. His feeling was in favour of the closest possible alliance between the

examining University of the present and the teaching University of the future.

The Chairman expressed with how much regret he left that scene of action. He was sure that a very great work remained to be done in the future, and that that work would have to be done with a great deal of tact. Certainly it would have to be achieved by setting aside any notion of establishing in London any kind of ideal University. They had to co-operate with existing corporations, with existing bodies, which had hitherto done exceedingly good work, which were all manned by an extremely distinguished *personnel*—a *personnel* whose ideal it had been to do University work without having a University, and which *personnel* he hoped in the future would have at their disposal the University to which their labours had fully entitled them. He did not say this because he himself was guiltless of having mentioned what he believed to be an ideal University, for he had been guilty of such an escapade in the address which he delivered at St. Andrew's University. There he distinctly laid down what he thought to be the lines on which a University ought to be reformed; and, of course, what he advocated for the Scotch Universities he should in the main—of course there were features applicable to Scotch which were not applicable to the London University—also advocate for London. But in London the problem before them was to unite all the interests, to create a federation of interests, and to recognise the work which had been already achieved with the desire to make that work for the future more efficient, without in any way encroaching on autonomy where autonomy had hitherto proved sufficient, but where autonomy had not before proved altogether sufficient, then, to supplement it by that bond of union by which institutions and empires became great. He resigned his position as President of the Association with the wish—nay, the determined expectation—that they would succeed. He had seen how the work had been thus far done, and how determined had been those with whom he had had the honour to associate to carry the movement to a successful issue.

Sir George Young expressed how greatly they were indebted to the President for the services he had rendered in the past. The services of a very good successor had been secured in Lord Rosebery, whom he (Sir G. Young) proposed as the future president of the association, while thanking Lord Reay for his valuable services.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE

OXFORD.—The second election to the Board of the Faculty of Natural Science was held on February 6. The five retiring members were re-elected, and to make the number of elected members equal to that of the professorial (*ex officio*) members, four new members were elected. After a ballot the following were chosen:—Mr. W. W. Fisher, Aldrichian Demonstrator of Chemistry; Mr. H. B. Dixon, Trinity; Mr. J. Griffiths, Jesus, and Mr. E. H. Hayes, New College.

The Examiners for the Burdett-Coutts Geological Scholarship give notice that the examination will begin on February 23.

An examination will be held at Merton, beginning on June 23, to elect to one Natural Science Scholarship (80*l.*) at Merton, and one at Corpus Christi College. The examination will be in Chemistry and Physics. Candidates must be under nineteen years of age.

On March 17 an examination will be held at Jesus in Physics, Chemistry, and Biology. Candidates must be natives of Wales or Monmouthshire, or born of Welsh parents, and must be under nineteen years of age.

An examination will be held at New College beginning on May 7, to elect to a Natural Science Exhibition (50*l.* value per annum). The examination will be in Chemistry and Fiology.

At a meeting of the Ashmolean Society in the Theatre of the University Museum on Monday, February 16, Prof. Burdon-Sanderson will read a paper "On the Study of Contagion with a view to Practical Measures."

SCIENTIFIC SERIALS

THE last number (13) of the *Journal of the Straits Branch of the Royal Asiatic Society* contains much information on the Malay Archipelago. Mr. de la Croix continues his translation of M.

de Quatrefages's work on the pigmies, the present instalment dealing with the Asiatic pigmies or negritos, and the negrillos or African pigmies. The general conclusion to which the writer comes is that modern science has erred in rejecting all that has been written on this subject by the ancients, for in the midst of many exaggerations and fables there were many facts. He finds it impossible, in the present state of our knowledge, to offer a satisfactory solution of one of the most curious points connected with the geographical distribution of the human race, viz. the narrow resemblance between the Asiatic negritos and the African negrillos, separated as they are by a vast space and by numerous and different races. Are these affinities the result of a common origin? A paper containing a translation of a Dutch account of Malacca, written in 1726, follows this, and is itself succeeded by a long one by Mr. Maxwell, of the Straits Settlement Civil Service, on the laws and customs of the Malays with reference to the tenure of land. The Rev. J. Tenison-Woods prints two lectures on the stream-tin deposits of the protected State of Perak in the Malay peninsula, and the volume concludes with two accounts of travel, one through the State of Remban in the peninsula, the other along the Tawaran and Putalan rivers, which are said to rise in the great mountain Kina Bahu, and flow through North Borneo. We observe, also, the prospectus of a very necessary work—an English-Malay dictionary, which, it is suggested, should be translated from Mr. Klinkert's Dutch-Malay dictionary.

Journal de Physique, vol. iv. January.—J. R. Benoit, construction of standard prototypes of the legal ohm. M. Benoit, who was associated with MM. Mascart and de Nerville in the official French researches at the Collège de France, has, at the request of the Minister of Posts and Telegraphs, prepared standards in mercury to represent the legal ohm. This paper gives an account of the methods of calibrating and preparing the tubes for four exact standards. It remains to be seen whether these will prove as permanent as standards constructed in platinum-silver or iridio-platinum alloy.—H. Pellat, on the cause of electrification of storm clouds. Discusses the observations of atmospheric potential at different levels, and concludes that the negative charge of the soil surface is explicable on the hypothesis that it is continually renewed by the falling of negatively charged rain.—E. Bouty, on latent heats of vaporisation. Deduces the approximate law that the latent molecular heats of bodies measured at their normal boiling temperatures are proportional to the squares of these temperatures; tabular evidence is given in support.—E. Bouty, on the specific heat of saturated vapours. Gives a new formula.—Em. Paquet, determination of the ratio of the two specific heats of gases. Describes a modification of Cazin's method, in which the desired change of pressure is brought about by a column of mercury, as in Geissler's mercurial pumps. The deduced value for air is 1.4038.—J. Macé de Lépinay, method of measuring the interior diameter of a barometric tube. Ingenious application of optical laws to deduce internal diameter from the apparent diameter, assuming the refractive index of glass.—G. Quincke, on the measurement of magnetic forces by means of hydrostatic pressure. Abstract of paper in *Philosophical Magazine*, 1884.—W. von Beetz, on normal elements for electromotive measurements. Abstract from *Philosophical Magazine*.—K. Ångström, a new geothermometer. An underground mercury thermometer is read by means of an index attached to a rack and pinion, which is operated from above. When contact is made with the mercury an electric bell rings, and the index is read off.

SOCIETIES AND ACADEMIES LONDON

Royal Society, February 5.—"The Relation of Bacteria to Asiatic Cholera." By E. Klein, M.D., F.R.S., Joint Lecturer on General Anatomy and Physiology at the Medical School of St. Bartholomew's Hospital, London.

I propose to bring before the Royal Society the results of an inquiry into the etiology of Asiatic cholera, undertaken, at the instance and expense of the Secretary of State for India, by myself, Dr. Gibbes, and Mr. Alfred Lingard while in India. This investigation will be published *in extenso* by the India Office, but permission has been granted to us to bring to the notice of the Society some of the more important points of our inquiry, particularly those regarding the relation of bacteria to

Asiatic cholera. I shall supplement them by giving the results of further observations which I have made since my return from India.

As is now well known, Dr. Robert Koch, in an extensive inquiry into the etiology of cholera in Egypt, Calcutta, and in France, 1883-84, undertaken by him, Drs. Gaffky and Fisher, at the instance of the German Government, has arrived at certain conclusions, which, briefly stated, are these:

1. In all persons suffering from Asiatic cholera there occur in the rice-water stools during the acute stage of the disease certain well-characterised bacteria, which, on account of their curved shape, Koch called "comma bacilli."

2. These comma bacilli are mobile rods, of small size, of about the same thickness as tubercle bacilli, but only of half their length; they are always more or less curved, sometimes as much as to form half a circle; they vary in length according to the state of growth; they occur either singly or in couples, in the latter case arranged like an S.

3. The comma bacilli occur in great numbers in mucus flakes as well as in the fluid of the choleraic evacuations. They occur in the lower part of the ileum of persons dead in the acute stage almost to the exclusion of other bacteria, and in such great numbers that the lower part of the ileum may be considered to contain almost "a pure cultivation of comma bacilli."

4. The mucous membrane of the ileum, particularly that of the lower part, around and in the lymphatic glands located here—the solitary and Peyer's lymph-glands—exhibits in typical and rapidly fatal cases characteristic alterations: loosening and detachment of the epithelium of the surface and of that lining the glands of Lieberkühn; swelling and congestion of the blood-vessels of the mucous membrane, particularly at the peripheral portions of the lymph glands. These alterations are due to the presence, growth, and multiplication of the comma bacilli in these tissues, and the disease cholera is caused by the production on the part of these comma bacilli, and by the absorption on the part of the system of a special chemical ferment.

This state of the presence of the comma bacilli in the tissue is best pronounced in the lower part of ileum; higher up it is more limited, and gradually diminishes, and finally disappears in the upper part of the small intestine.

5. The blood and other tissues are free of any organisms.

6. The comma bacilli grow well outside the body at the ordinary temperature of the room, but better still at higher temperatures up to 38° or 40° C. They divide transversely; after division the two offsprings may remain joined end to end with shape of an S, and by further division they may grow into spiral-like or wavy form. They grow well in the mucus flakes taken from the intestine, and placed on linen kept in a moist cell; they grow well on potato, in broth, in Agar-Agar jelly, in solid nourishing gelatine mixtures (gelatine, peptone, and beef extract). In this latter substance they exhibit a peculiar and definite mode of growth not seen by Koch on any other bacteria. The comma bacilli require for their growth an alkaline medium; they are killed by acid, by drying, and various antiseptic media.

7. On account of their constant occurrence in the intestines of patients suffering from Asiatic cholera, on account of their absence in all other diseases of the intestine, and on account of their peculiar mode of growth in nourishing gelatine, Koch vindicates for these comma bacilli not only an important diagnostic value, but also considers them as the true cause of cholera.

8. Since his return to Germany, Koch has convinced himself of the correctness of the observations of Nicati and Rietzsch, who maintain that cholera can be produced in dogs and guinea-pigs by injecting directly into the small intestine of these animals the comma bacilli taken either directly from the choleraic evacuations, or from artificial cultivations.

Our investigations enable us to say this:

1. Koch's statement as to the constant occurrence of comma bacilli in the rice-water stools of cholera patients is correct; the comma bacilli vary greatly in numbers in different stools and in different cases, in some being exceeding scarce, in others numerous.

2. These comma bacilli vary greatly in length, some being twice and three times as long as others, some well curved as much as to form half a circle, others showing only just a slight bend. The name "comma bacillus" is inappropriate, as in reality they are vibrios.

3. The comma bacilli occur in the mucus flakes of the rice water stools as well as in those taken from the ileum of a person